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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/995,202	11/27/2001	Marcus Palazzo	04645.1003	9525

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EXAMINER	
ALEJANDRO, RAYMOND	
ART UNIT	**PAPER NUMBER**
1745	7

DATE MAILED: 10/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/995,202	PALAZZO ET AL.	
	Examiner	Art Unit	
	Raymond Alejandro	1745	

-- The MAILING DATE of this communication appears on the cover she t with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 September 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 February 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

1. Applicant's cancellation of claims 11-30 (Group II-III) and election of claims 1-10 (Group I) in Paper No. 6 is acknowledged.

Priority

2. Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 11/27/01 (paper # 4) was considered by the examiner.

Drawings

4. The sheets of drawings, filed on 02/08/02, have been accepted.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 3 recites the limitation "the halogen" in lines 16-17. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Ono et al 6001507.

The present application is directed to an electrochemical cell wherein the disclosed inventive concept comprises the specific binders used therein. Other limitations include the specific cell; the specific binders and their weight content; the battery components.

With reference to claims 1-3:

Ono et al disclose a non-aqueous electrolyte battery including a cathode and an anode wherein the active material of the cathode and/or the anode are is integrated by a binder; and the binder of the cathode and/or anode is a mixture of polyimide and a fluorine polymer (COL 2, lines 55-63/COL 3, lines 54-64/ABSTRACT). It is disclosed that, in general, polyimide is not dissolved in any organic solvent (COL 2, lines 18-20).

> According to the present invention, there is provided a non-aqueous electrolyte battery including a cathode and an anode, wherein an active material of the cathode and/or an active material of the anode is integrated by a binder, and the binder of the cathode and/or the binder of the anode is a mixture of polyimide, in which conversion to imide has been completed and which is soluble in an organic solvent, and a fluorine polymer.

In general, polyimide is not dissolved in any organic solvent. Therefore, the polyimide must be made to be

Examiner's note: *accordingly, products of identical chemical composition can not have mutually exclusive properties, and thus, the claimed property i.e. "the polyimide not soluble in the electrolyte", is necessarily present in the prior art material.*

With reference to claim 2:

It is disclosed that secondary batteries as well as primary batteries can use the binders (COL 1, lines 32-40).

With reference to claim 4:

The fluorine polymer binder can be any of the following materials (COL 4, line 65 to COL 5, line 12):

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any one of the following materials may be employed in the present invention: fluororesin, such as PVdF, PTFE, tetrafluoroethylene, hexafluoropropylene copolymer (FEP), polyvinyl fluoride (PVF) or ethylene-tetrafluoroethylene copolymer (ETFE); and fluorine rubber, such as a binary copolymer of vinylidene fluoride and hexafluoropropylene (VdF-HFP), a ternary copolymer of vinylidene fluoride, hexafluoropropylene and tetrafluoropropylene (VdF-HFP-TFE), a binary copolymer of tetrafluoroethylene and propylene (TFE-Pr) and a ternary copolymer of tetrafluoroethylene, propylene and polyvinylidene fluoride (TFE-Pr-VdF).

With reference to claims 5-7:

EXAMPLES 1-14 shows the specific weight ratio of the binders and the particular binder mixture consisting of polyvinylidene fluoride and polyimide (EXAMPLES 1-14/ TABLES 1-3), for example:

EXAMPLE 2

Soluble polyimide and PVdF which was the fluorine polymer were employed as the binder of the cathode in such a manner that 1.5 parts by weight of the soluble polyimide and 1.5 parts by weight of PVdF were sufficiently mixed with each other so that a required binder was obtained. The content of the soluble polyimide in the binder was 50 wt %. A cylindrical non-aqueous electrolyte secondary battery was manufactured by a method similar to that according to Example 1 except for the above-mentioned binder for the cathode.

TABLE 1

	Polyimide	Fluorine Polymer	Content of Polyimide in Binder (wt %)
Example 1	Soluble Polyimide	PVdF	90
Example 2	Soluble Polyimide	PVdF	50
Example 3	Soluble Polyimide	PVdF	16.7
Example 4	Soluble Polyimide	PVdF	5
Example 5	Soluble Polyimide	PVdF	3
Example 6	Soluble Polyimide	PVdF	95
Example 7	Soluble Polyimide	PTFE	90

TABLE 3

	Polyimide	Fluorine Polymer	Content of Polyimide in Binder (wt %)
Example 8	Soluble Polyimide	PVdF	90
Example 9	Soluble Polyimide	PVdF	50
Example 10	Soluble Polyimide	PVdF	16.7
Example 11	Soluble Polyimide	PVdF	5
Example 12	Soluble Polyimide	PVdF	3
Example 13	Soluble Polyimide	PVdF	95
Example 14	Soluble Polyimide	PTFE	90

With reference to claim 8:

It is disclosed the cathode comprises a composite chalcogen compound containing lithium such as $LiCoO_2$, $LiNiO_2$, $LiMnO_2$ or the likes (COL 5, lines 37-55). The anode can comprises a carbonaceous material (COL 5, line 64 to COL 6, line 5/ COL 6, lines 27-30, lines 40-42, lines 47-49)

With reference to claims 7, 9-10:

As to the method limitation, *i.e. the polyimide as a product of the conversion of polyamic acid and the specific heat curing*, it is noted that a method limitation incorporated into a product claim does not patentable distinguish the product because what is given patentably consideration is the product itself and not the manner in which the product was made. Therefore, the patentability of a product is independent of how it was made.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (703) 306-3326. The examiner can normally be reached on Monday-Thursday (8:30 am - 7:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Raymond Alejandro
Examiner
Art Unit 1745